United States Patent [19]

LeVine

[11] **Patent Number: 4,714,239**

[45] **Date of Patent: Dec. 22, 1987**

[54] **SHARPENER MOUNTING CONSTRUCTION**

[76] Inventor: **Arthur L. LeVine**, P.O. Box 800, Williamsville, N.Y. 14221

[21] Appl. No.: **837,143**

[22] Filed: **Mar. 7, 1986**

Related U.S. Application Data

[62] Division of Ser. No. 614,685, May 29, 1984, which is a division of Ser. No. 325,758, Nov. 30, 1981, Pat. No. 4,471,951.

[51] **Int. Cl.**[4] **B24B 3/54**

[52] **U.S. Cl.** **269/3**; 269/71; 269/97

[58] **Field of Search** ..... 76/82, 82.2, 88; 51/69, 51/166 FB, 221 BS, 221 R, 217 P, 217 A, 217 R, 170, 166 TS; 24/248.5 A, 263 A; 403/3, 4; 269/3, 4, 71, 97–98, 45, 907, 88, 900, 87.3

[56] **References Cited**

U.S. PATENT DOCUMENTS

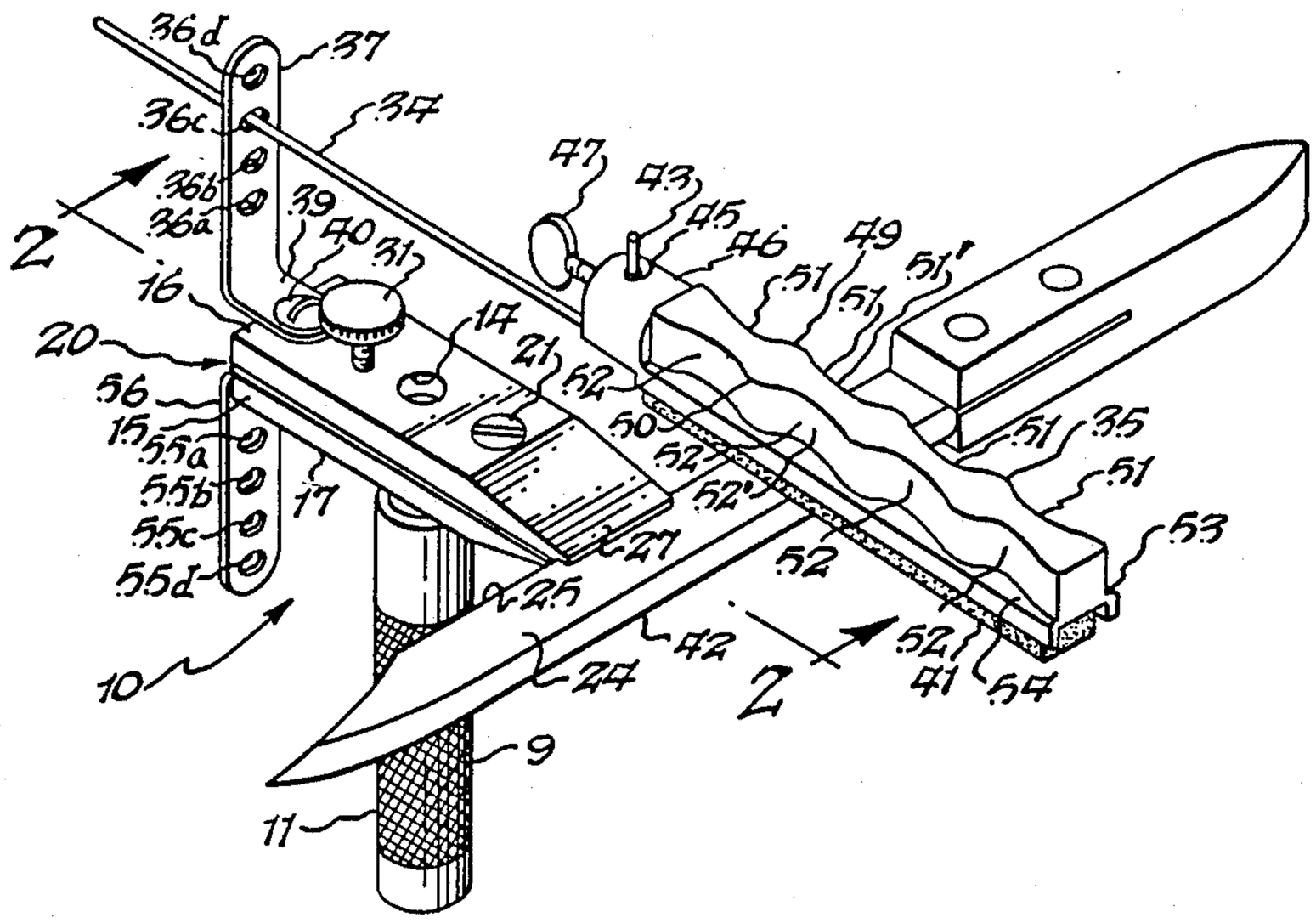
93,031	7/1869	Zimmerman .	
308,046	11/1884	Williams .	
905,331	12/1908	Larsen et al. .	
945,771	1/1910	Ensminger .	
1,039,831	10/1912	Sisson	269/3
1,148,303	7/1915	Farrar .	
1,368,218	2/1921	Chenette .	
1,601,339	9/1926	Ballou .	
1,681,763	8/1928	Eaton .	
1,806,234	5/1931	Boyd .	
1,832,968	11/1931	DeArmey .	
2,012,513	8/1935	Maze .	
2,082,755	6/1937	Polney .	
2,116,343	5/1938	Davis .	
2,157,816	5/1939	Carosi .	
2,536,279	1/1951	Grube .	
2,586,636	2/1952	Fischer et al. .	
2,731,863	1/1956	Bellows .	
3,819,170	6/1974	Longbrake .	
4,137,003	1/1979	Budoff	269/87.3
4,320,892	3/1982	Longbrake .	
4,404,873	9/1983	Radish	269/3

Primary Examiner—Robert C. Watson
Attorney, Agent, or Firm—Joseph P. Gastel

[57] **ABSTRACT**

A sharpener mounting construction for sharpening opposite sides of a knife edge including a sharpener body for clamping a knife, opposite sides on the sharpener body, bores on opposite sides of the sharpener body, a post, and a pin at the end of the post, the pin being of a diameter to fit snugly within the bores whereby the sharpener body may be mounted on the post in one attitude and thereafter the sharpener body can be inverted and mounted on the post in an inverted attitude. The posts in turn may be threadably mounted on a plate or detachably mounted on a C-clamp in a plurality of attitudes.

5 Claims, 19 Drawing Figures



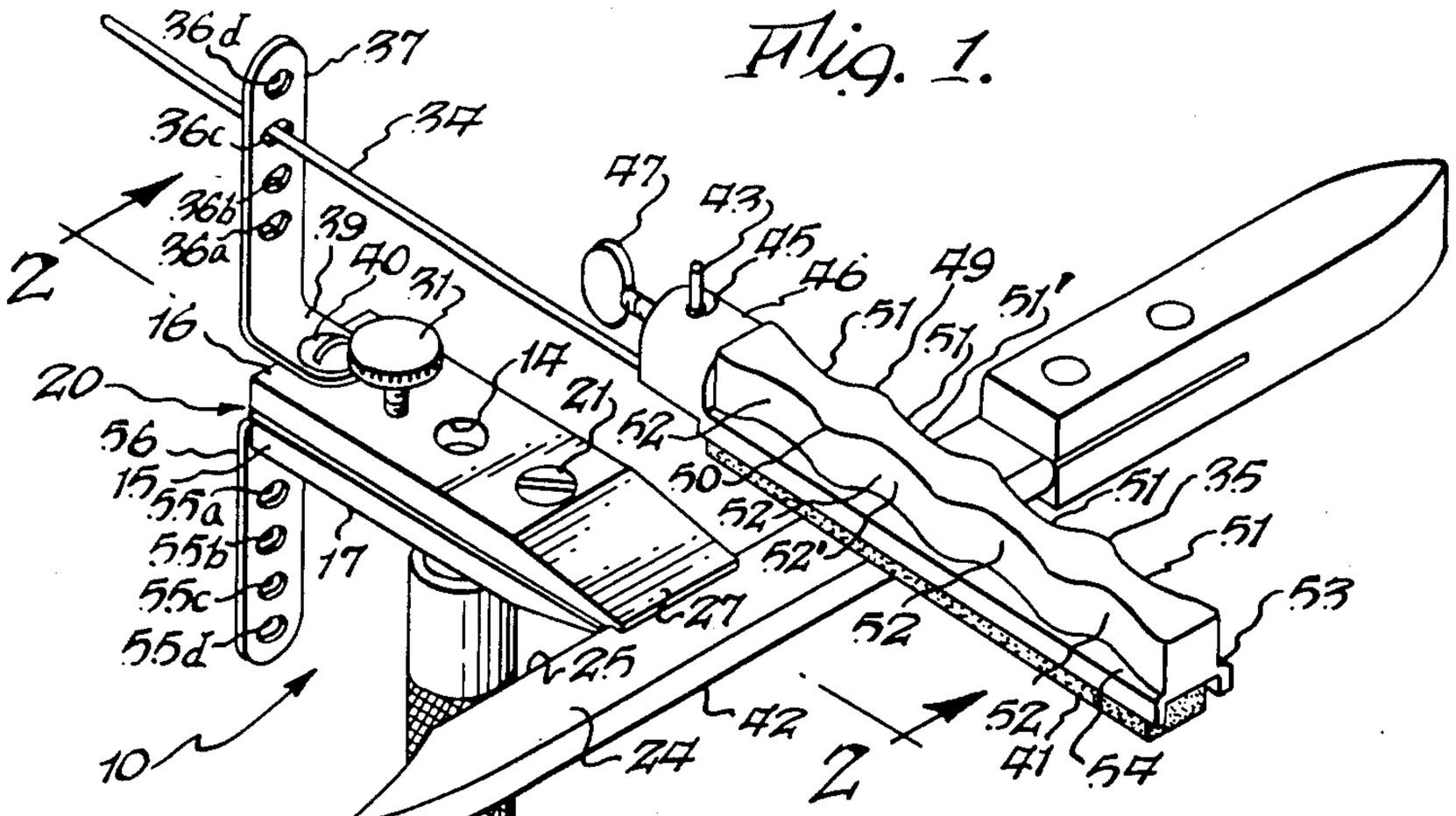


Fig. 1.

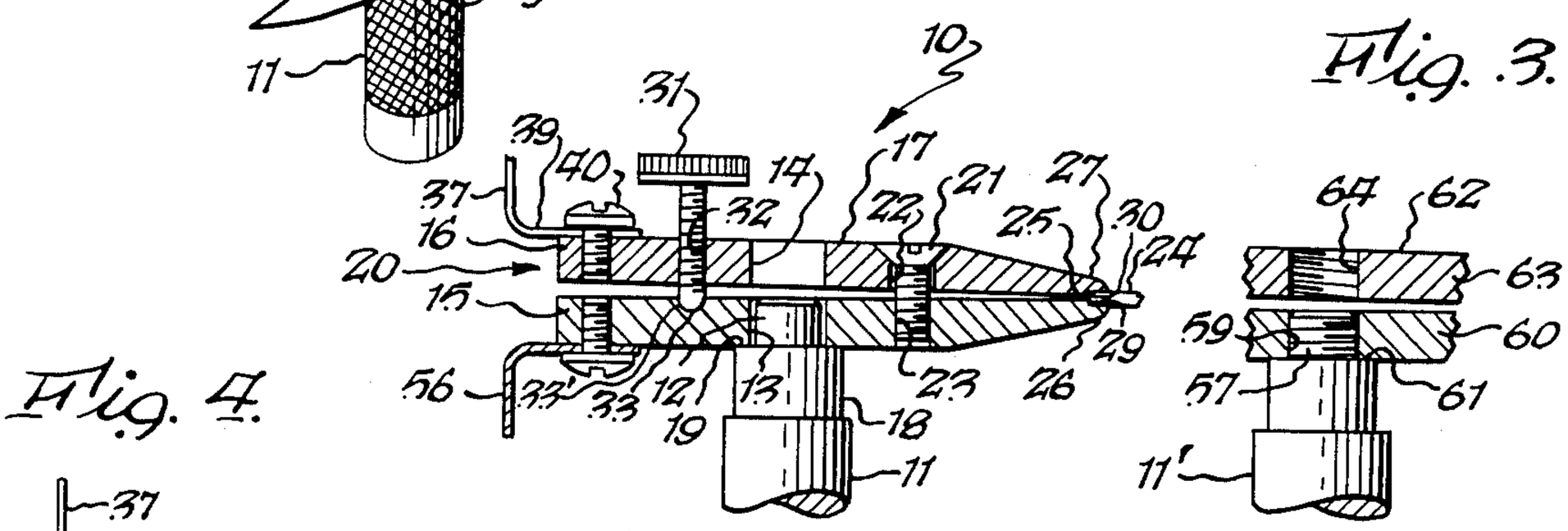


Fig. 3.

Fig. 4.

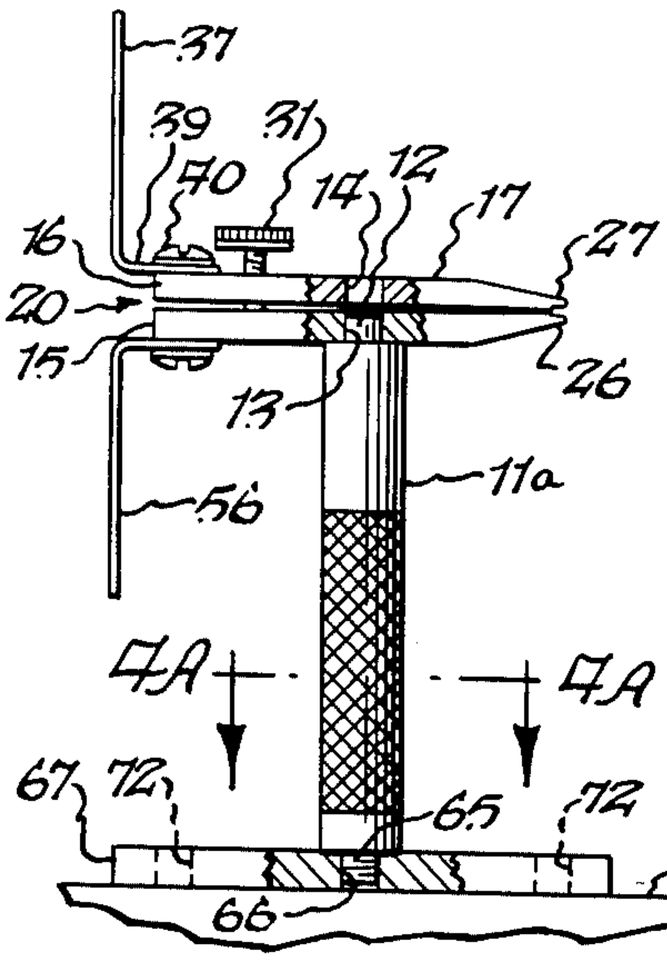


Fig. 2.

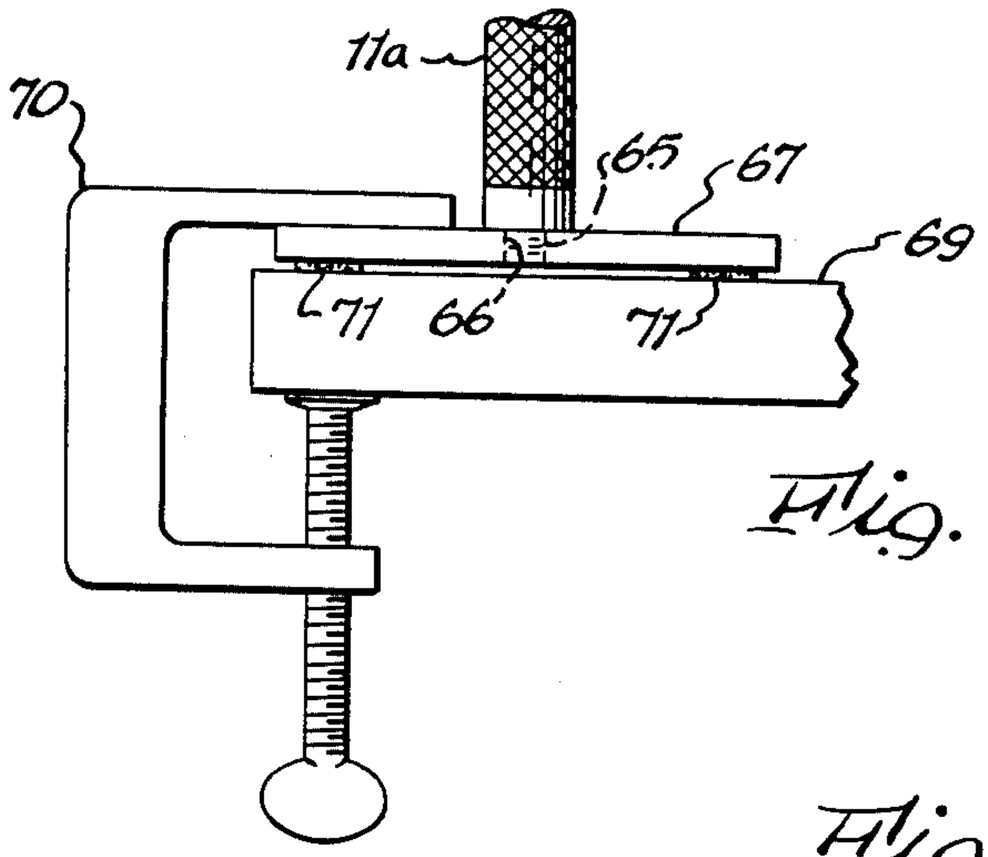


Fig. 5.

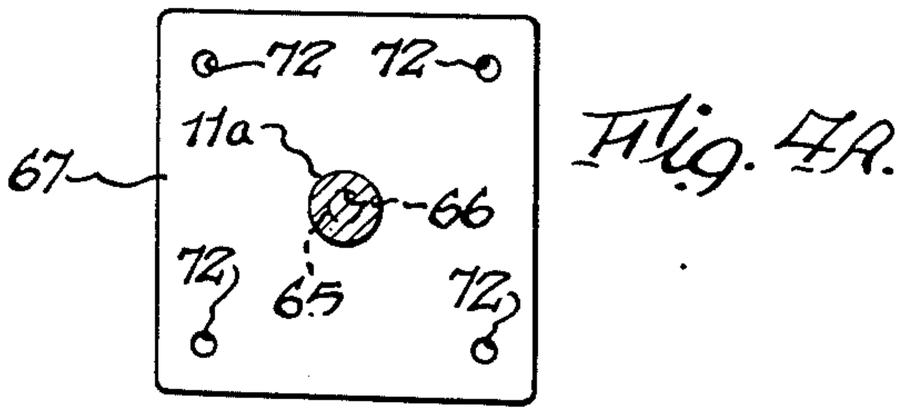


Fig. 4A.

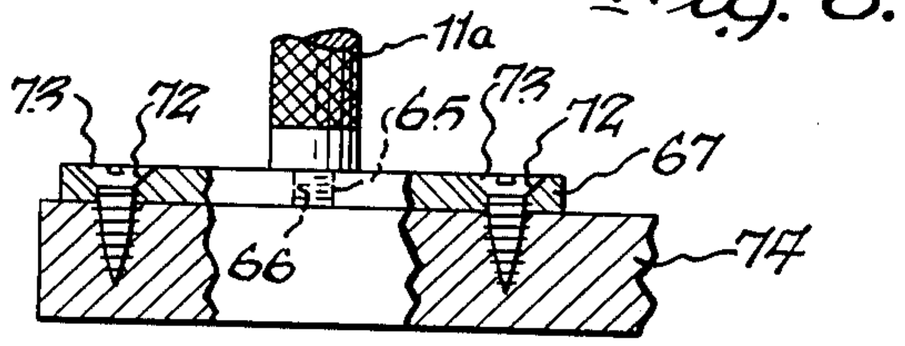


Fig. 6.

Fig. 7.

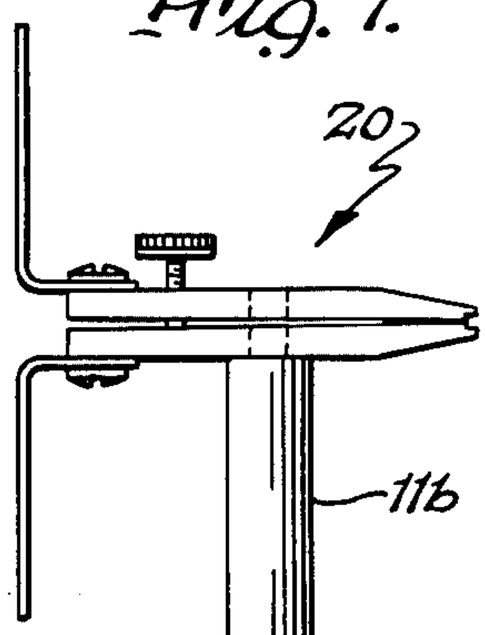


Fig. 7A.

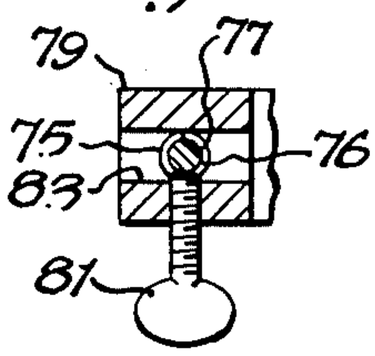


Fig. 10.

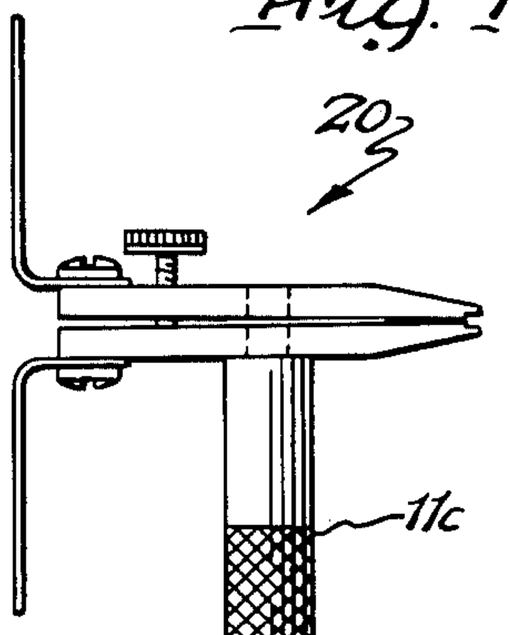


Fig. 9.

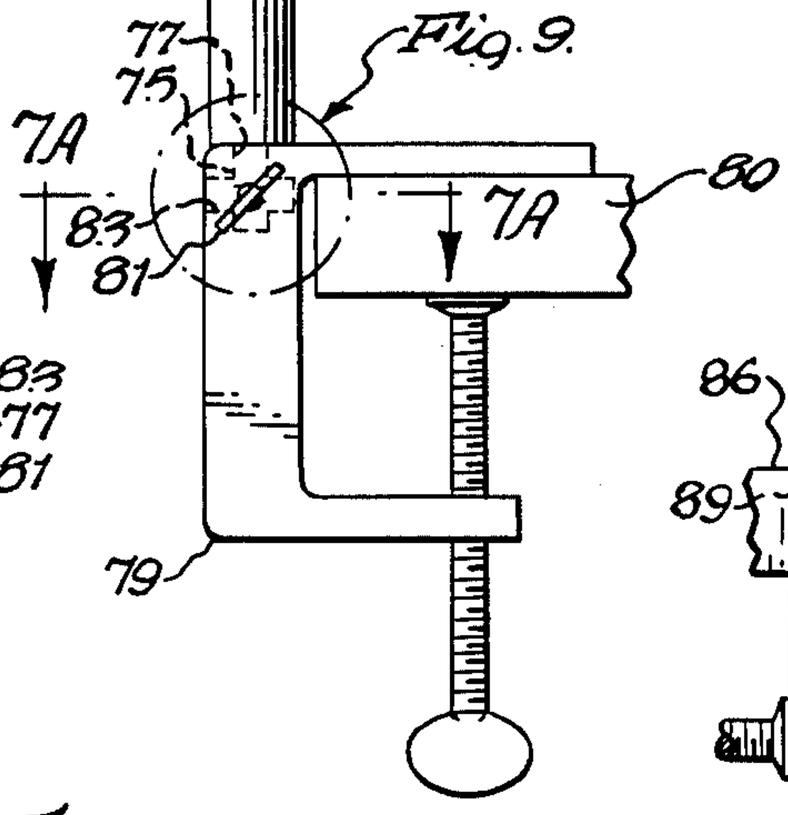


Fig. 12.

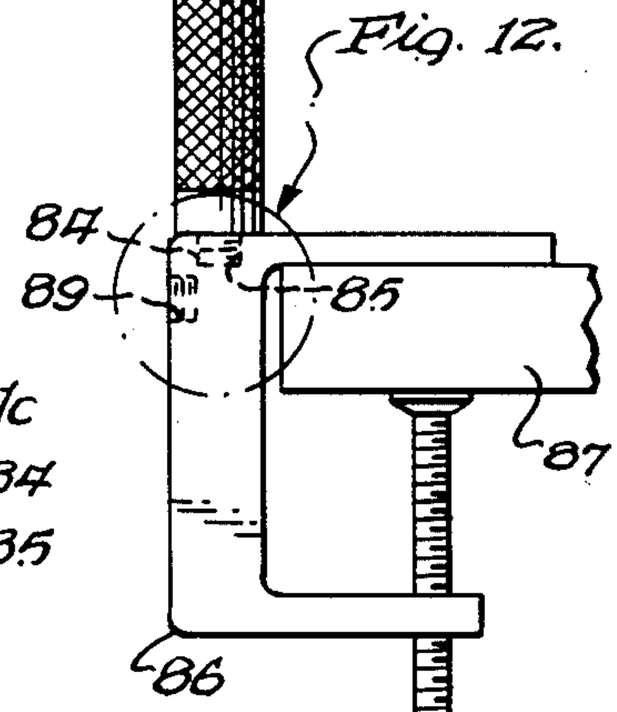


Fig. 8.

Fig. 11.

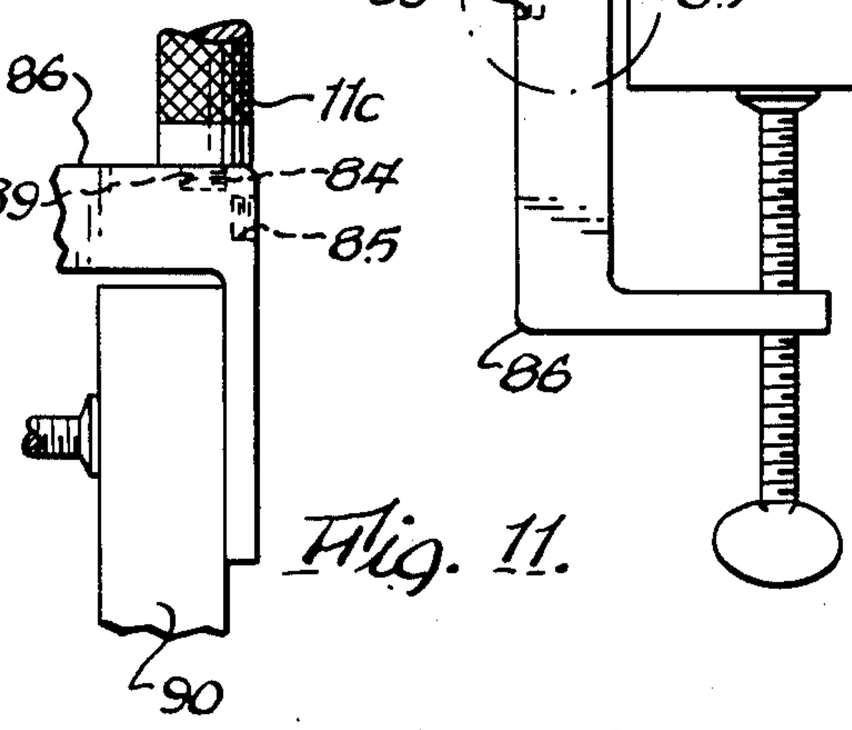


Fig. 9.

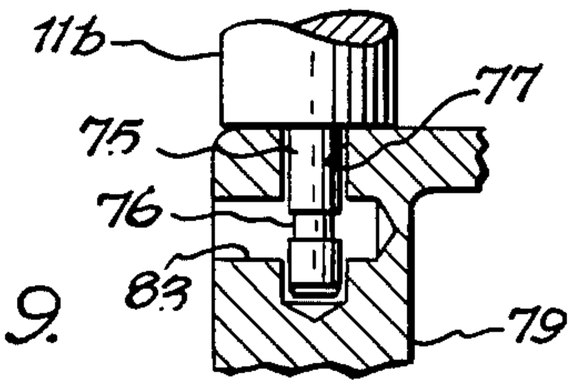


Fig. 12.

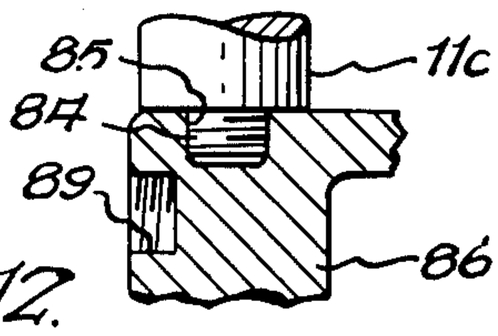


Fig. 17.

Fig. 13.

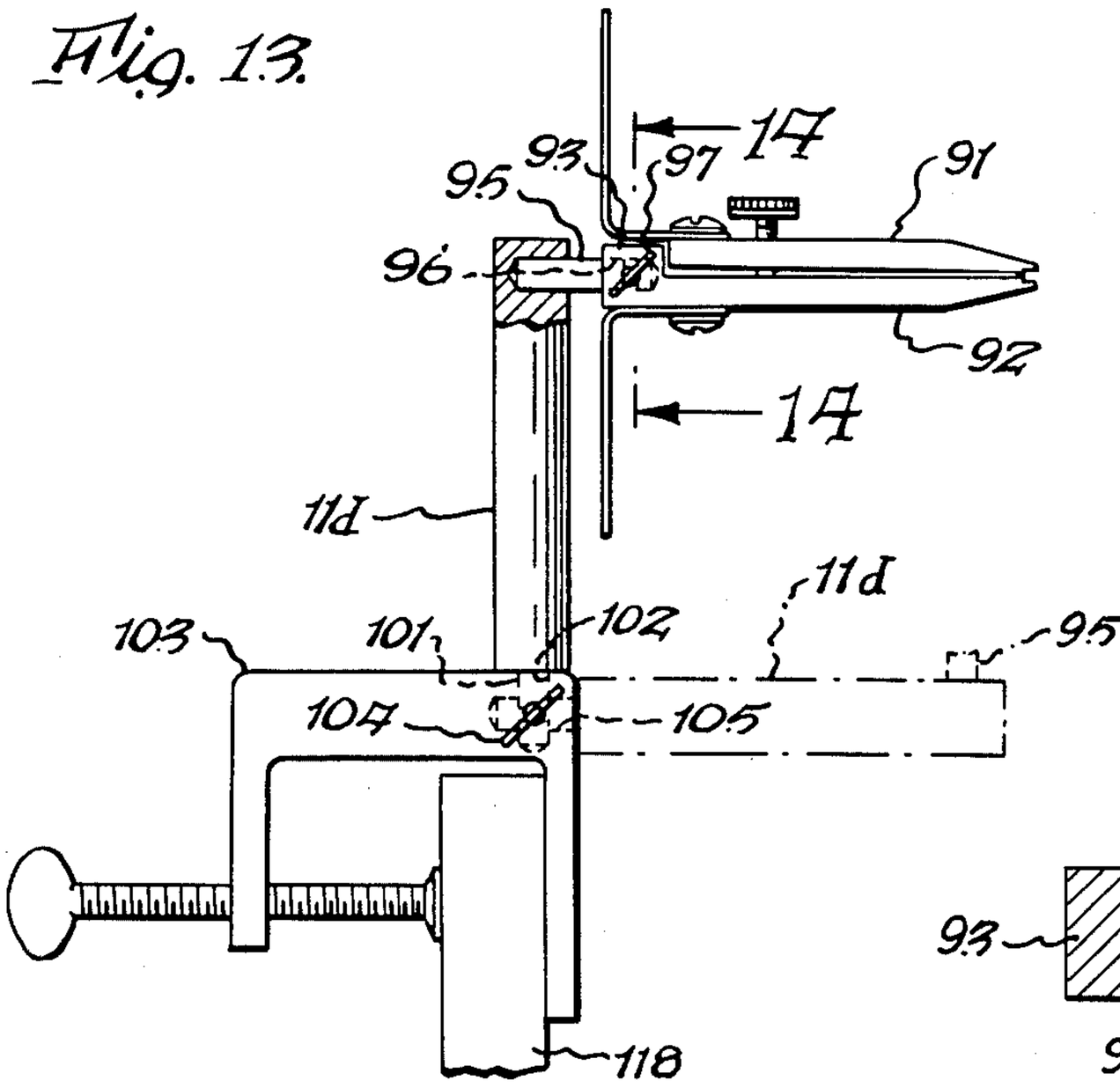


Fig. 14.

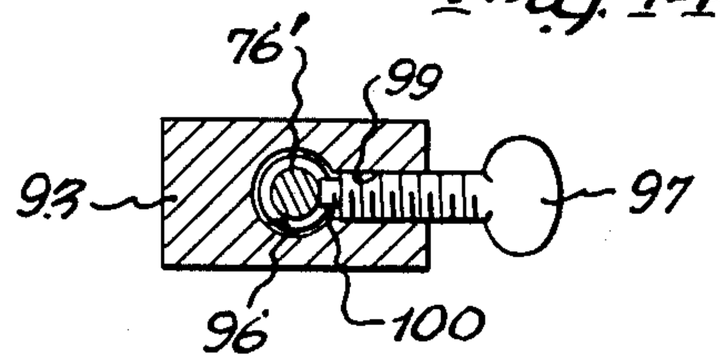


Fig. 15.

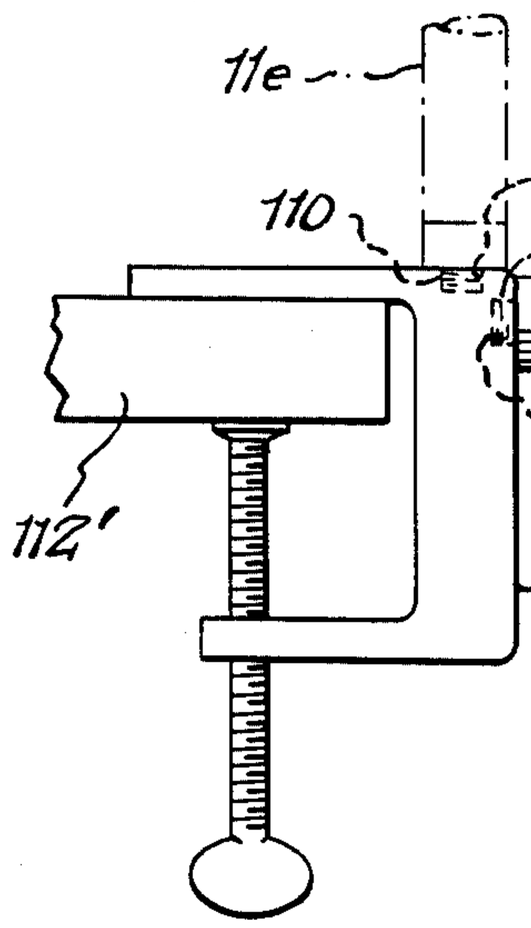


Fig. 16.

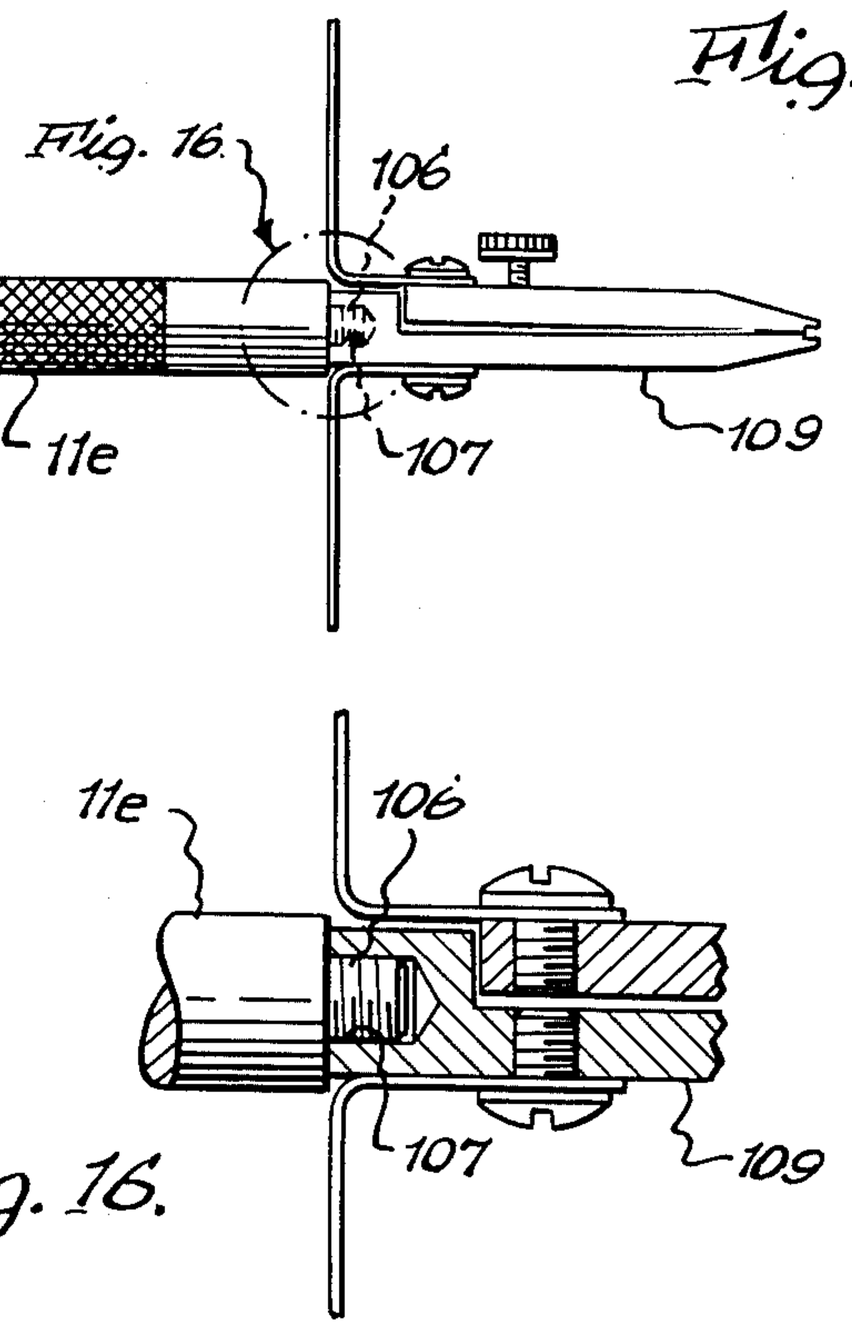


Fig. 16.

SHARPENER MOUNTING CONSTRUCTION

This is division of application Ser. No. 614,685 filed May 29, 1984, which is a division of application Ser. No. 325,758, filed Nov. 30, 1981, now U.S. Pat. No. 4,471,951.

BACKGROUND OF THE INVENTION

The present invention relates to an improved sharpener mounting construction.

By way of background, knife sharpeners of the type shown in U.S. Pat. No. 3,819,170 are known. A sharpener of this type includes a sharpener body having a pair of clamp members which clamp the rear edge of a knife. Guides are attached to the clamp members for guiding a sharpening stone at a predetermined angle relative to the knife blade. In the past, sharpeners of the foregoing type were held directly in the hand, and thus had certain drawbacks, namely, that the hand holding the clamp members could not get a good grip on them, which resulted in the sharpener being held in an unstable manner. In order to overcome the foregoing deficiencies, a C-clamp type of mounting having an upstanding post was developed, with the sharpener being mounted on a post by an extremely complex bracket. It is with overcoming the foregoing deficiencies of the prior art that the present invention is concerned.

SUMMARY OF THE INVENTION

It is one object of the present invention to provide an extremely simple improved holder for a knife sharpener which mounts the knife sharpener in a stable manner.

Another object of the present invention is to provide an improved holder for a knife sharpener which can be attached to a C-clamp or a mounting plate in an extremely simple and expedient manner. Other objects and attendant advantages of the present invention will readily be perceived hereafter.

The present invention relates to a sharpener mounting construction for sharpening a knife edge comprising a sharpener body including a pair of clamp members for clamping a knife, a post, a pin on the post, and bore means in said sharpener body for receiving said pin.

The various aspects of the present invention will be more fully understood when the following portions of the specification are read in conjunction with the accompanying drawings wherein:

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a perspective view showing the sharpener mounting construction of the present invention supporting a sharpener and showing a sharpening stone and holder in position for sharpening a knife;

FIG. **2** is a fragmentary cross sectional view taken substantially along line **2—2** of FIG. **1**;

FIG. **3** is a fragmentary view of a portion of FIG. **2** and showing an alternate embodiment of the mounting post;

FIG. **4** is a side elevational view, partially in cross section, showing a modified sharpener mounting construction;

FIG. **4A** is a cross sectional view taken substantially along line **4A—4A** of FIG. **4**;

FIG. **5** is a fragmentary side elevational view showing how the embodiment of FIG. **4** may be secured to a table top;

FIG. **6** is a fragmentary cross sectional view similar to FIG. **5** showing another way of securing the embodiment of FIG. **4** to a table top;

FIG. **7** is a fragmentary side elevational view showing how the sharpener mounting construction may be mounted on a C-clamp which is secured to a horizontal member, such as a table top;

FIG. **7A** is a cross sectional view taken substantially along line **7A—7A** of FIG. **7**;

FIG. **8** is a fragmentary side elevational view showing how the sharpener may be mounted on a C-clamp which is secured to a vertical surface, such as the back of a chair;

FIG. **9** is an enlarged fragmentary view of the portion of FIG. **7** within the circle captioned FIG. **9**;

FIG. **10** is a fragmentary side elevational view of a modified embodiment of the structure shown in FIG. **7** mounted on a C-clamp secured to a horizontal table top;

FIG. **11** is a fragmentary side elevational view showing how the mounting construction of FIG. **10** may be secured to a C-clamp mounted on a vertical surface, such as the back of a chair;

FIG. **12** is an enlarged fragmentary view, partially in cross section, of the encircled portion of FIG. **10** which is designated FIG. **12**;

FIG. **13** is a fragmentary side elevational view, partially in cross section, showing a modified form of sharpener body and a modified form of mounting construction therefor;

FIG. **14** is a cross sectional view taken substantially along line **14—14** of FIG. **13**;

FIG. **15** is a modified embodiment of the mounting construction of FIG. **13**;

FIG. **16** is a fragmentary enlarged view of the portion of FIG. **15** within the circle designated FIG. **16**; and

FIG. **17** is a modified form of the mounting construction for the sharpener body of FIG. **15**.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

The improved sharpener mounting construction **10** essentially consists of a post **11** having a knurled portion **9** and an integral pin **12** at the end thereof which fits snugly into bore **13** or **14** of clamp member **15** or **16**, respectively, of sharpener body **17** of sharpener **20** to provide a person with a better grip relative to the sharpener body **17** when a knife is being sharpened. In use, a person generally grasps the post **11** with the last three fingers and holds the sharpener body **17** between his thumb and forefinger. Post **11** includes a reduced portion **18** having an annular shoulder **19** at its upper end which bears against the immediately contiguous underside of clamp member **15**, as shown in FIG. **2**. The combination of pin **12** and shoulder **19** stabilize the sharpener when it is being held. The sharpener **20** itself, exclusive of the bores **13** and **14** and exclusive of post **11**, does not constitute any part of the present invention.

The sharpener **20** may be identical to the sharpener disclosed in copending application Ser. No. 325,757, filed on even date herewith, now abandoned, which is an improvement over the sharpener disclosed in U.S. Pat. No. 3,819,170. The sharpener **20**, as noted above, includes contiguous clamp members **15** and **16** which are secured to each other by a screw **21** which passes through enlarged bore **22** in member **16** and is threadably received in tapped bore **23** of member **15**. Clamp members have inner sides (not numbered) which face each other, and they also have outer sides (not num-

bered) which face away from each other. When a knife **24** is to be sharpened, its rear edge **25** is placed between jaws **26** and **27** with the rear edge of the knife abutting shoulders **29** and **30**. Screw **21** is adjusted with a screwdriver or a dime to clamp the rear edge **25** reasonably securely. Thereafter, thumb screw **31**, which is threadably mounted in tapped bore **32** of member **16**, is tightened to cause its end **33** to be received in and bear against a dimple **33'** in the upper surface of member **15**, and this will pivot member **16** about the axis of screw **21** to provide a greater clamping force on the rear edge **25** of the knife. Dimple **33'** aids in preventing sidewise movement of clamp members **15** and **16** relative to each other.

Pin **12**, which is received in bore **13** with a sliding fit, has a length which is not substantially greater than the thickness of member **15**. If it were longer and if it extended into bore **14**, when screw **31** was tightened to cock member **16**, there could be binding between pin **12** and bore **14**. By making pin **12** sufficiently short so that it does not enter bore **14**, binding is obviated. Pin **12** is inserted into bore **13** from the outer side of clamp member **15**.

After the knife **24** has been clamped, it can be sharpened while post **11** and sharpener body **17** are held in the above-described manner. Sharpener **20** includes a rod **34**, which is attached to sharpening stone holder **35** on which sharpening stone **41** is mounted. Rod **34** is inserted through one of the apertures **36***a* or **36***b* or **36***c* or **36***d* of upstanding guide bracket **37** which has a foot portion **39** attached to clamp member **16** by means of screw **40**. The sharpening stone **41** is then caused to move across the knife edge **42** to be sharpened. This motion is a compound one which is both transverse and longitudinal of knife blade **24**. The guide rod **34** maintains the angle of stone **41** constant throughout the sharpening operation, and the angle applied to edge **42** is determined by the aperture in guide bracket **37** through which guide rod **34** is inserted.

The guide rod **34** is secured to holder **35** by means of guide rod end portion **43** which is a continuation of portion **34** and extends substantially perpendicularly thereto. Rod end **43** is received in a bore **45** in the end portion **46** of holder **35** and is secured therein by means of a thumb screw **47** which is threadably received in portion **46** and bears against guide rod portion **43**. Holder **35** includes two opposite undulating surfaces **49** and **50** each containing a plurality of concavities **51** and **52**, respectively. A right-handed person would place four fingers along concavities **51** and this thumb in the second concavity **52** which is also designated **52'**. A left-handed person would place his four fingers into concavities **52** and his thumb in the concavity **51** which is also designated **51'**. The ends of the fingers and the thumb rest againt the flanges **53** and **54** which are molded integrally with the stone holder. The construction of the stone holder forms the subject matter of copending application Ser. No. 325,757, filed of even date herewith, now abandoned.

After one edge of knife **24** has been sharpened, all that is necessary to be done to sharpen the other edge is to remove guide rod **34** from the hole **36***c* in which it is located, remove the pin **11** from bore **13**, invert the sharpener body **17** 180°, insert pin **12** into bore **14** from the outer side of clamp member **16**, and thereafter insert the rod **34** into aperture **55***c* of guide member **56** which is attached to clamp member **15** by a screw which is analogous to screw **40**. Guide member **56** is a mirror image counterpart of guide member **37**. The reason that rod **34** is inserted into aperture **55***c* is because this will give the same angle to the opposite side of knife edge **42** as was obtained by inserting rod **34** in aperture **36***c*. However, for different types of knives different edge angles are desired and this is the reason for having the series of apertures **36***a–d* and **55***a–d*.

An alternate embodiment of the present invention is shown in FIG. **3** wherein post **11'**, which is analogous to post **11**, has a pin with a threaded end **56** which is received in tapped bore **59** of clamp member **60**, which may be identical in all other respects to clamp member **15**. Upon tightening of threaded end **57** into bore **59**, clamp member **60** will come to rest against annular shoulder **61**. By this construction a good firm post connection to clamp member **60** is obtained. As with the previous embodiment, after one side of the knife edge has been sharpened in the above described manner, threaded end **57** is unscrewed from bore **59**, the sharpener body **62** is inverted and threaded end **57** is threaded into clamp member **63**, which is identical in all respects to clamp member **16** of the preceding figures, except for the threaded bore **64** which receives threaded end **57**.

In FIG. **4** a further embodiment of the present invention is disclosed. Post **11***a* may be identical in all respects to the posts of FIGS. **1** or **3** and the sharpener body supported by the posts may be identical to the sharpener bodies of FIGS. **1** or **3**. Post **11***a* differs from post **11** and **11'** of FIGS. **1** and **3** by having a threaded end **65** which is received in tapped bore **66** of plate **67** which rests on a table top **69**. As shown in FIG. **4**, there is no connection between table top **69** and plate **67** but the table top provides good support to plate **67** which in turn firmly supports post **11***a* which in turn firmly supports the sharpener body **20**. In use, post **11***a* is grasped in any desired manner while plate **67** bears on the table top. If desired, plate **67** may be clamped to the table **69** by means of a C-clamp **70** as shown in FIG. **5**. Pads **7** may be supplied on the underside of plate **67**. Plate **67** may have screw holes **72** therein for receiving screws **73** to firmly secure plate **67** to a workbench **74**.

In FIGS. **7–9** a modified form of mounting construction is shown. The sharpener **20** may be identical to that disclosed in FIGS. **1** or **3**. The post **11***b* varies only from those shown in FIGS. **1**, **3** and **4** in that the lower end is formed into a pin **75** having a reduced diameter portion **76**. Pin **75** is received in a bore **77** of C-clamp **79** which is attached to a table top **80**. A thumb screw **81** is threadably received in C-clamp body **79** and bears against the reduced diameter portion **76**. If it is desired to mount the C-clamp **79** on a vertical member **82**, such as the back of a chair, and if it is desired to maintain post **11***b* in a vertical attitude, it is merely necessary to remove pin **75** from bore **77** and insert it into bore **83** which extends at right angles to bore **77**, and thereafter tighten thumb screw **81**, as shown in FIG. **8**.

In FIGS. **10–12** a further embodiment of the present invention is shown. In this embodiment knife sharpener **20** may be identical to those shown in FIGS. **1** or **3**. Post **11***c* varies from post **11***b* in that it has a threaded reduced diameter end **84** which can be received in tapped bore **85** of C-clamp **86** in the event the latter is mounted on a horizontal member **87** or it may be received in tapped bore **89** of C-clamp **86** in the event the latter is mounted on a vertical member **90**.

In FIGS. **13** and **14** a further embodiment of the present invention is disclosed wherein sharpener body **91** is of a different construction than sharpener body **17**.

The difference resides in the fact that the lower clamp member **92** has a block **93** formed at the end remote from the end which clamps the knife. Otherwise, the structure may be identical to the structure described above relative to FIGS. **1** and **2**, except for the pin-receiving holes **13** and **14**. The post **11***d* includes a horizontal pin member **95** having an axis which extends transversely to the longitudinal axis of post **11***d*. The outer end of pin **95** is of the same shape as pin **75** of FIG. **9**. The outer end of pin **95** is received in bore **96** of block **93** and a thumb screw **97**, which is threaded into bore **99**, has an end **100** which bears against the reduced diameter portion **76'** which is analogous to portion **76** of FIG. **9**. The lower end of post **11***d* includes a pin **101** which is identical in construction to pin **75** of FIG. **9** and which is received in a bore **102** in C-clamp **103** and is secured therein by means of thumb screw **104** of the type described above relative to FIG. **7A**. If C-clamp **103** is mounted on a horizontal body **87**, such as shown in FIG. **10**, then pin **101** is inserted into bore **105** and thumb screw **104** is tightened.

A further modified form of post **11e** is shown in FIGS. **15** and **16** wherein the post has a threaded reduced end **106** which is received in tapped bore **107** of sharpener body **109** which may otherwise be identical to sharpener body **91**. The opposite end of post **11***e* has a threaded reduced diameter portion **110** which is received in either tapped bore **111** of clamp **112** or tapped bore **113**, depending on how the C-clamp **112** is attached to the supporting body and depending on the desired orientation of post **11***e*. Generally, bore **111** will be used if the mounting of C-clamp **112** is on a horizontal body **112'**, and bore **113** will be used if C-clamp **112** is mounted on a vertical body, such as **118** of FIG. **13**.

A still further embodiment is disclosed in FIG. **17** wherein sharpener body **109** may be identical in all respects to that disclosed in FIG. **16**. However, the attachment to post **11f** is by means of a post **114** which has its end **115'** threaded into tapped bore **107** and which is received in bore **115** of post **11***f* and secured therein by means of thumb screw **116**.

It will be appreciated that in every embodiment described above the sharpener body may be inverted 180° after the first side of the knife edge has been sharpened, so that access may be had to the other side of the knife edge. The inversion is achieved by either demounting the sharpener body from the pin (plain or threaded) and thereafter remounting it in an inverted position, as in the embodiments of FIGS. **1** and **3**, or by loosening the thumb screw which secures the sharpener body to the post and pivoting the sharpener body 180°, as in the embodiments of FIGS. **13** and **17**, or by merely unthreading the sharpener slightly from the post to rotate the sharpener body 180°, as in the embodiment of FIG. **15**.

While preferred embodiments of the present invention have been disclosed, it will be appreciated that the present invention is not limited thereto, but may be otherwise embodied within the scope of the following claims.

What is claimed is:

1. A sharpener clamp construction for mounting on a mounting post comprising a sharpener body including first and second contiguous clamp members for clamping a knife, end portions on said first and second contiguous clamp members, first and second knife clamping means on said end portions of said first and second knife clamping members, respectively, inner and outer opposite sides on each of said first and second clamp members, said inner sides facing each other and said outer sides facing away from each other, first and second mounting post receiving bore means extending inwardly into each of said first and second clamp members, respectively, from said outer sides toward said inner sides for receiving the end of said mounting post for mounting said sharpener clamp construction on said end of said mounting post in two orientations 180° displaced from each other, and securing means for securing said first and second clamp members in assembled relationship.

2. A sharpener clamp construction as set forth in claim **1** wherein said securing means comprise a screw extending through one of said clamp members and received in threaded relationship in the other of said clamp members.

3. A sharpener clamp construction as set forth in claim **1** wherein said first and second clamp members include second end portions remote from said first end portions, and first and second sharpener stone guiding means mounted on said first and second clamp members, respectively, at said second end portions.

4. A sharpener clamp construction as set forth in claim **3** wherein said first and second knife clamping means extend in opposite directions away from said outer sides.

5. A sharpener clamp construction as set forth in claim **1** wherein said first and second mounting post receiving bore means are in axial alignment with each other so that said knife clamping means on said first and second clamp members are always located at the same distance from said mounting post in both of said orientations which are 180° displaced from each other.

* * * * *